

PATENT SPECIFICATION

DRAWINGS ATTACHED

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1.040.692

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Date of filing Complete Specification Nov. 19, 1962.

Application Date Aug. 21, 1961.

No. 30023/61.

Complete Specification Published Sept. 1, 1966.

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Index at acceptance: —E2 A(C8A2B, C8C, C8D, D5C2U)

Int. Cl.: —E 05 b 65/32

COMPLETE SPECIFICATION

Improvements in or relating to Door Fastening Devices

We, WILMOT-BREEDEN LIMITED, a British Company, of Amington Road, Birmingham, 25, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to fastening devices for vehicle doors and of the type including external releasing means which comprise a pushbutton which when fitted is normally operative from outside the door to release the fastening device but can be rendered inoperative by means of internal locking means operable from inside the door.

According to the invention a vehicle door fastening device comprises a main body on which are mounted the fastening elements and associated releasing elements of the device, and external releasing means in the form of a pushbutton assembly incorporating a pushbutton housing, a pushbutton with a stem having a portion of non-circular section which passes through an appropriately shaped aperture in an end wall of the housing during a releasing movement of the pushbutton, and pushbutton locking means arranged for connection to internal locking means so that movement of the locking means to the locking position serves to produce angular movement of the stem to a position in which the latter cannot pass through said aperture and a blocking face on the housing blocks and prevents releasing movement of the stem, the main body and the releasing means being formed for separate mounting on and support by the door structure.

Thus in accordance with the invention the pushbutton locking means are formed and arranged in the pushbutton assembly independently of the main body of the device on which the fastening elements, which may include a cam-like rotary latch member, and the releas-

ing elements operated by the pushbutton are mounted. The term "fastening elements" as used herein is to be construed as referring to a latch member, for latching engagement with a separate keeper, and elements which co-operate with the latch member to retain it in the latching position.

The blocking face may be formed on an inner end wall of the housing through which the pushbutton stem projects, and the pushbutton locking means conveniently comprise a locking lever mounted on the stem to turn with the latter to the locking position. With this arrangement the locking lever is preferably arranged inwardly of the end wall of the housing and projects from the housing for connection to the internal locking means, and the lever may be slidably mounted on the stem.

The pushbutton locking means, which may take the form of the aforesaid locking lever in association with said blocking face, are conveniently arranged for connection directly to a sill control locking rod which in use projects through the door capping and forms the internal locking means.

The invention will now be further described with reference to the accompanying drawings which illustrate, by way of example, a vehicle door fastening device embodying external releasing means in accordance with the invention. In the drawings:—

Figure 1 is a view of the device as assembled in the vehicle door structure and viewed with the inner door panel removed,

Figure 2 is a side view looking along the door structure from the direction of the hinged side thereof, partly in section on the line II—II in Figure 1,

Figure 3 is a plan view of the releasing means, and

Figure 4 is a detail perspective view.

The device comprises a main body 1 embodying fastening and releasing elements which

[Price 4s. 6d.]

is mounted at the shut face of the door, a pushbutton assembly 2 mounted on the outer door panel 3 so as to project through the latter, and internal locking means comprising a sill locking rod 4 adapted to project through the door capping (not shown) internally of the door window.

The fastening elements include a latch member in the form of a cam 5 arranged for latching engagement with a striker and keeper 6 which is shown in section in Figure 1 and is mounted in the appropriate position on the corresponding body pillar. The cam 5 is spring urged to the latching position from which it is turned to release the device, either from outside the door by means of the external releasing means comprising the pushbutton assembly or from inside the door by means of internal releasing means. The latter means include a pivotally mounted remote control lever 7, forming one of said releasing elements, and a remote control linkage one link of which is shown at 8 connected to the lever 7.

The pushbutton assembly comprises a housing 9 which is embodied in the outer door handle 10 and within which the pushbutton 11 is slidably mounted, being urged to an outwardly projecting resting position by a return spring 12 within the housing 9. The pushbutton 11 comprises an outer tubular body portion 13 which is non-rotatable in the handle 10 and in the outer end of which is mounted a key-operated cylinder-type lock 14 coupled through a lost-motion connection to an aligned stem 15 of the pushbutton.

The stem 15 is rotatably mounted in the inner end of the body portion 13 and projects therefrom through an inner end wall 16 of the housing 9. At its inner end the stem has an extension 17 threaded into the main outer section of the stem. The pushbutton 11 is aligned with a pivotally mounted contactor 18 forming one of said releasing elements and displaceable by the pushbutton stem to turn the cam 5 and release the device. On assembly, the extension 17 is locked in the correctly adjusted position in the stem outer section by means of a locknut 9 to provide the correct effective length of the pushbutton 11.

Over most of its length outside the body portion 13 the stem outer section is cut away leaving a central core 19 (see particularly Figure 4 from which project two diametrically opposed longitudinally extending ribs 20. The end wall 16 has an aperture 22 (see Figure 1) of similar profile with which the stem 15 is normally aligned for free passage therethrough, and the stem outer section terminates within the housing 9 just short of the end wall 16 when the pushbutton 11 is in the resting position. Thus the stem 15 can be turned about the pushbutton axis, either by the cylinder lock 14 or pushbutton locking means now to be described, so that it is no longer aligned with the aperture 22 and hence

cannot pass therethrough. When this occurs the inner surface of the end wall 16 acts as a blocking face to prevent inward releasing movement of the pushbutton 11.

A locking lever 23 is non-rotatably but slidably mounted on the cut-away stem section 19, 20 immediately adjacent the end wall 16, this lever forming the aforesaid pushbutton locking means and projecting through an aperture 24 in the housing side wall. The projecting end of the lever 23 is formed for direct attachment to the sill locking rod 4, so that movement of the latter serves to turn the lever 23 and with it the stem 15 between the normal position shown in the drawings and the locking position in which releasing movement of the pushbutton 11 is blocked by the end wall 16. The sill rod 4 has a cranked lever end 25 which engages a bore 26 in the lever 23, and as shown in Figure 2 such engagement is retained by a spring clip 27 on the end 25 which is clipped on to the rod 4 above the lever. The clip 27 is for clarity omitted from Figure 1 and is sectioned through with the rod 4 in Figure 3. In Figure 1 the contactor is also omitted to show the inner end of the pushbutton stem 15.

The lost-motion connection between the key-operated lock 14 and the stem 15 prevents the lock 14 interfering with operation of the still control rod 4. However, as the locking lever 23 is non-rotatably mounted on the stem 15 movement of the latter by the lock 14 produces corresponding movement of the sill control rod 4. Thus the sill control always provides a visual indication even from outside the vehicle of whether the device is locked or unlocked.

It will be appreciated that in the described arrangement the invention provides an exceptionally simple construction in which not only the pushbutton assembly but also the internal locking means are completely separate from the main body 1 of the device and mounted independently thereof.

WHAT WE CLAIM IS:—

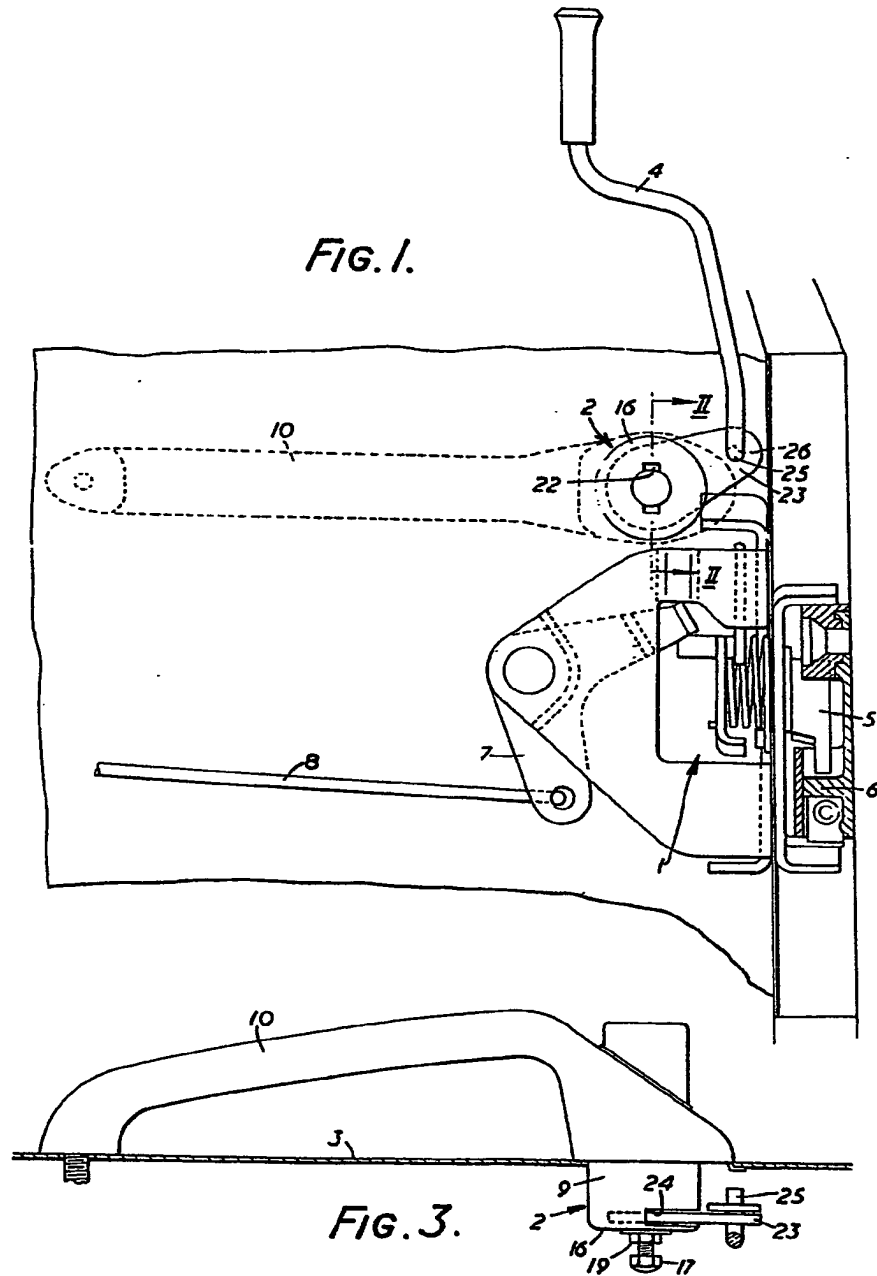
1. A vehicle door fastening device comprising a main body on which are mounted the fastening elements and associated releasing elements of the device, and external releasing means in the form of a pushbutton assembly incorporating a pushbutton housing, a pushbutton with a stem having a portion of non-circular section which passes through an appropriately shaped aperture in an end wall of the housing during a releasing movement of the pushbutton, and pushbutton locking means arranged for connection to internal locking means so that movement of the locking means to the locking position serves to produce angular movement of the stem to a position in which the latter cannot pass through said aperture and a blocking face on

- the housing blocks and prevents releasing movement of the stem, the main body and the releasing means being formed for separate mounting on and support by the door structure.
- 5 2. A fastening device according to claim 1, wherein the blocking face is provided by the end wall of the housing.
- 10 3. A fastening device according to either of the preceding claims, wherein the pushbutton locking means include a locking lever mounted on the stem to turn with the latter to the locking position.
- 15 4. A fastening device according to claim 3, wherein the locking lever is arranged inwardly of the end wall of the housing and projects from the latter for connection to the internal locking means.
- 20 5. A fastening device according to claim 4, wherein the lever is slidably mounted on the stem.
- 25 6. A fastening device according to any of the preceding claims, wherein the pushbutton locking means are arranged for connection directly to a sill control locking rod which when fitted projects through the associated door capping and forms the internal locking means.
7. A fastening device according to any of the preceding claims, wherein a key-operated lock 30 mounted in the pushbutton is arranged to turn the pushbutton stem between normal and locked positions.
8. A fastening device according to claim 7, wherein a lost-motion connection between the 35 key-operated lock and the stem enables the pushbutton locking means to operate independently of the key-operated lock.
9. A fastening device for a vehicle door constructed and arranged substantially as herein 40 particularly described with reference to the accompanying drawings.

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Leamington Spa: Printed for Her Majesty's Stationery Office by the Courier Press.—1966.

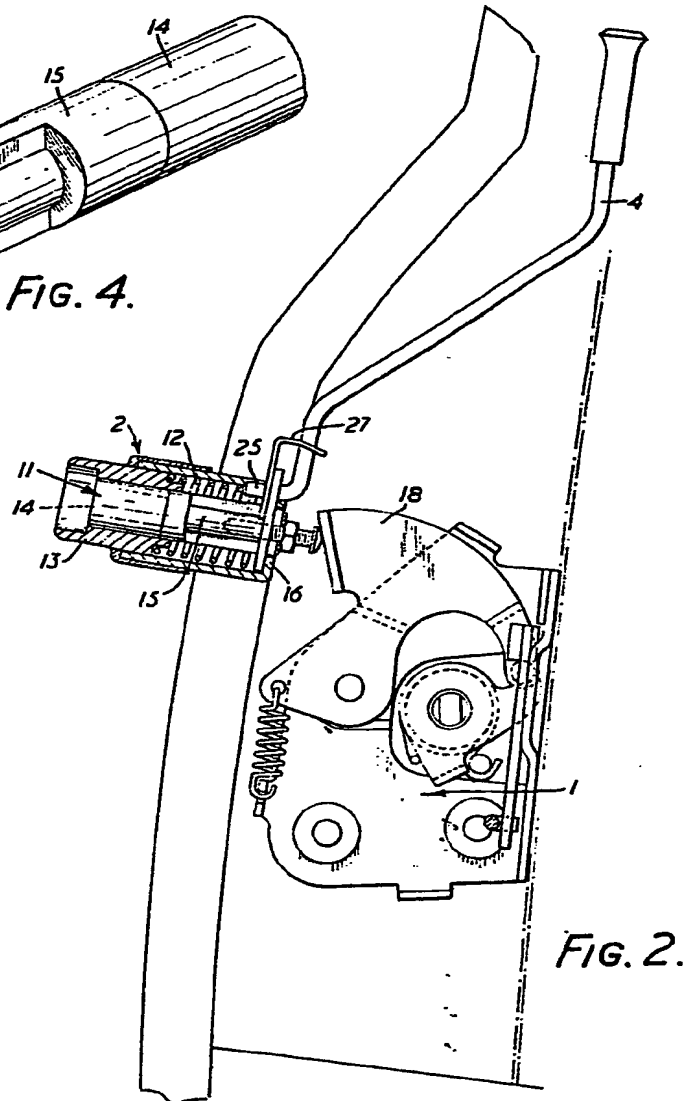
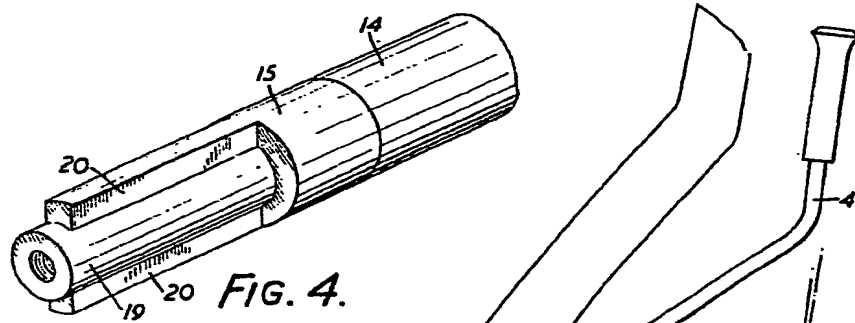
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